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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,290	07/27/2001	Kwok-Shun Cheng	MCA-437PC/US	8923

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EXAMINER

MENON, KRISHNAN S

ART UNIT PAPER NUMBER

1723

DATE MAILED: 09/25/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/890,290

Applicant(s)

CHENG ET AL.

Examiner

Krishnan S Menon

Art Unit

1723

-- **Th MAILING DATE of this communication app ars on th cov r sh t with th correspond nc address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Claims 1-32 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-18, 20-24, 26-30 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kawai et al (US 5,158,680).

Kawai (680) teaches a filtration cartridge with a housing having an inlet and outlet with one or more hollow fiber membranes located inside, having a liquid-seal and the membrane formed of perfluorinated thermoplastic resin (fig 2, col 9 lines 15-62) as in instant claim 1,3,5,6 and 8. The membrane could be pleated as in instant claim 2 and 10 (col 9 lines 45-55), or tubular depth filter as in instant claim 4 and 11 (col 9 lines 45-55). The membrane is potted in, and the caps could be of, a thermoplastic perfluorinated resin as in instant claim 12 and 9 (example 6). The cartridge made substantially of thermoplastic perfluorinated resin as in instant claim 13 (example 6, col 9 lines 15-62, col 3 lines 44-53). The membrane could be microporous or ultrafiltration as in instant claim 14, 15, 26 and 27 (col 7 lines 8-55, col 10 lines 1-19, examples). There could be an end cap on each end of the housing (col 9 lines 53-58), end cap being unitary with the membrane, being of same or similar material and melt joined, as in instant claim 16,17,28 and 29. The thermoplastic fluorinated polymer is PTFE-co-PFAVE as in instant claims

Art Unit: 1723

5, 18 and 30. The seal material for the cartridge has a lower melting point than the membrane material (col 8 lines 6-41) as in instant claim 20-22. The cartridge is cylindrical and could have a cylindrical (tubular) membrane in an annular form (one tubular membrane in one housing) (col 9 lines 44-58) and of substantially perfluorinated thermoplastic (col 3 lines 44-52). Kawai (680) teaches a hollow fiber cartridge with parts made substantially of perfluorinated thermoplastic (col 3 lines 44-52, fig 23, col 9 lines 15-62) with two ends having liquid-tight seals as in instant claim 32.

Kawai teaches phase inversion for forming the membrane as in all claims (col 5 lines 24-68). However, “liquid-liquid phase inversion” as in claims 1-4, and “formed by phase inversion” as in claims 13,23,and 32 are process steps in a product claims. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1723

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 7,19,25,31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai (680) in view of EP 0 175 432 A2.

Kawai (680) teaches all the elements of claims 7,19,25 and 31, except the choices for the alkyl group in instant claim 7, 19 and 31, and the fabric reinforcement for the flat sheet membrane as in instant claim 25. Kawai (680) teaches a porous support for the membrane (col 7 lines 57-68) but does not say that it is a fabric. EP'432 teaches a perfluorinated polymer thermoplastic support for the perfluorinated thermoplastic membrane to make a pleated membrane cartridge.(16-fig 1 and 2). It would be obvious to one of ordinary skill in the art at the time of invention to use the teachings of EP'432 and provide a fabric support for the membrane of Kawai (680) by lamination for improved strength and for providing an additional filter layer for coarse filtration. One of ordinary skill in the art at the time of invention obviously would chose a lower order alkyl group such as methyl, ethyl or propyl, or a mixture thereof, if one need to chose an alkyl group.

Response to Arguments

Arguments submitted by the applicant are not persuasive.

Re argument that the Kawai ref discloses a PTFE membrane: Kawai teaches a homo polymer or a copolymer membrane, the co-polymer having perfluoroalkylvinyl ether in it up to 50%. (See col 3 lines 44-52). Moreover, perfluoroalkylvinyl ether co-polymers are used in the membranes and retained in the membrane and cartridge after heat treatment in this reference as described in col 8 lines 15-60. Re removal of the film forming polymer, it is immaterial because lines 44-52 in col 3 specifically states that the resin used is a homo polymer OR copolymer (in the alternative), and the copolymer is perfluoroalkylvinylether.

Re argument that applicant uses phase inversion process whereas the reference teaches removal of the film-forming polymer by heat treatment, and Kawai et al membranes being formed by more complex manufacturing process: Reference teaches phase inversion process for making the membrane (see col 5 lines 24-68). Removal of the film-forming polymer in the reference is not relevant because applicant's claims are open-ended (comprising..). Also please note: "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Re argument that Kawai et al requires no fibrils in the membrane structure, such an element is not claimed in claim 1, or other claims.

Re the argument that EP '432 ref teaches a porous fluorocarbon support (PTFE) and that PTFE is not a thermoplastic: (The applicant apparently has the ref # EPO 125431 A2 wrong;

Art Unit: 1723

examiner used EP 0 175 432 A2). Page 2 of the reference teaches the fluorocarbon resins used, which includes the perfluorovinyl ether polymer. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan Menon
Patent Examiner
September 9, 2003


W. L. WALKER
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